

REMARKS

Claims 1, 9, 21, 24 and 28-30 have been amended. Claims 27, 34-51 and 67-106 have been canceled. Claims 111-118 have been added to capture allowable subject matter, as discussed below. Claims 1-22, 24-26, 28-33, 52-66 and 111-118 are pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Claim objections:

The Examiner objected to claims 1-20, 24-30 and 52-66 because of informalities. Claims 1, 9, 21, 24 and 27-30 have been amended, as suggested by the Examiner, to overcome this objection.

Section 102(b) Rejection:

The Examiner rejected claims 21 and 31 under 35 U.S.C. § 102(b) as being anticipated by MacGregor, et al. (U.S. Patent 4,584,640) (hereinafter “MacGregor”). Applicants respectfully traverse this rejection for at least the reasons presented below.

Claim 21 has been amended to include the subject matter recited in claim 27, which the Examiner indicated would be allowable if rewritten in independent form. Thus, Applicants submit that claim 21 and all of its dependent claims are allowable and respectfully request the removal of the § 102 rejection of claim 21. As claim 31 depends from claim 21, Applicants submit that claim 31 is allowable and respectfully request removal of the § 102 rejection of claim 31.

Section 103(a) Rejection:

The Examiner rejected claims 1-5, 9, 11, 14-17, 24, 26, 29, 30, 52, 53, 55, 57, 60-63 and 66 under 35 U.S.C. § 103(a) as being unpatentable over Afek, et al. (“Atomic

Snapshots of Shared Memory”) (hereinafter “Afek”) in further view of MacGregor, claims 32 and 33 as being unpatentable over MacGregor in view of Yeh et al. (U.S. Publication 2003/0105943) (hereinafter “Yeh”), claim 22 as being unpatentable over MacGregor in view of Bonola (U.S. Publication 2003/0065892), claims 6-8 and 54 as being unpatentable over Afek and MacGregor and further in view of Bonola, claims 18, 19, 64 and 65 as being unpatentable over Afek and MacGregor and further in view of Yeh, and claim 20 as being unpatentable over Afek, MacGregor and Yeh and further in view of Bonola. Applicants respectfully traverse these rejections for at least the reasons presented below.

Regarding claim 1, Afek in view of MacGregor fails to teach or suggest **using a pair of single-location synchronizations to ensure that the first application value remains unchanged across the snapshotting**. The Examiner admits that Afek fails to teach this limitation and relies on MacGregor, citing FIGs 3A and 3B as well as the Abstract and column 2, lines 15-42. However, the combination of Afek in view of MacGregor would not result in or suggest a system that included using a pair of single-location synchronizations to ensure that the first application value remains unchanged across the snapshotting.

Afek teaches a scan procedure that “repeatedly collect[s] the values of all n registers, until two such collect operations return identical values.” Macgregor teaches the use of compare and swap instructions when updating values. However, Macgregor teaches the use of compare and swap instructions when updating a shared memory location. Specifically, MacGregor teaches using a compare and swap instruction when actually performing the update to the shared memory location to verify that the location to be updated has the same value as prior to the start of the compare and swap (Macgregor, column 8, lines 39-67). Afek does not teach or suggest using any single-location synchronizations to ensure that a value remains unchanged across the scan procedure, and Macgregor only teaches using compare and swap instructions to verify that a location to be updated has an expected value when updating that location.

If Afek and MacGregor were combined as suggested by the Examiner, the resulting system would perform a scan procedure as taught by Afek and would use compare and swap instructions when actually updating a location. **The combination would not include using a pair of single-location synchronizations to ensure that the first application value remains unchanged across snapshotting.** Thus, the Examiner's combination of cited art fails to teach or suggest all the limitations of claim 1.

Furthermore, contrary to the Examiner's assertion, where would be no reason to modify Afek to "include MacGregor's compare and swap method." Afek specifically teaches the use of atomic registers. Afek states that his system "requires that any snapshot implementation be constructed with single-writer, multireader atomic registers as the only shared objects." **The fact that Afek's system requires atomic registers completely obviates any need and any benefit to using MacGregor's compare and swap instructions.**

Thus, the rejection of claim 1 is not supported by the cited art and removal thereof is respectfully requested. Similar remarks also apply to claim 52.

Allowable Subject Matter:

The Examiner objected to claims 10, 12, 13, 25, 27, 28, 56, 58 and 59 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

As noted above, claim 21 has been amended to include the allowable subject matter from claim 27.

Independent claims 111 – 118 have been added to capture subject matter indicated as allowable by the Examiner. Particularly, independent claim 111 recites the subject matter of claims 21, 24 and 25; independent claim 112 recites the subject matter of claims 21 and 28; independent claim 113 recites the subject matter of claims 1, 9 and 10;

independent claim 114 recites the subject matter of claims 1 and 12; independent claim 115 recites the subject matter of claims 1 and 13; independent claim 116 recites the subject matter of claims 52, 55 and 56; independent claim 117 recites the subject matter of claims 52 and 58; and independent claim 118 recites the subject matter of claims 52 and 59. Thus, independent claims 111 – 188 recite subject matter indicated as allowable by the Examiner and are therefore allowable.

Regarding both the §102 and §103 rejections above, Applicants also assert that numerous ones of the dependent claims recite further distinctions over the cited art. However, since the rejections have been shown to be unsupported for the independent claims, a further discussion of the dependent claims is not necessary at this time.

CONCLUSION

Applicants submit the application is in condition for allowance, and prompt notice to that effect is respectfully requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/6000-31700/RCK.

Respectfully submitted,

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